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ABSTRACT

A proposed model for an interim grammar between a first and second language, an autonomous rule-governed system based on the Extended Standard Theory, is presented and discussed, focusing on the motivations for choosing a generative model and the determination of structure for an interlanguage system, and using a comparison of the auxiliary system in French and English and the rules of clitic placement in French as examples. It is proposed that the second language learner would use the model to create utterances in the target language, and that the structure of the interlanguage is revealed by the systematic errors of the second language learner, reflecting the mechanism that generates them. The report discusses the role of core or universal grammar and markedness in interlanguage, language as a system, and related neurolinguistic evidence, and proceeds to a detailed examination of the French and English examples mentioned. A four-page bibliography is included. (MSE)

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Presented at the Ninth Annual
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A Generative Model of an Interlanguage System

1. Introduction

This paper is part of an ongoing study aimed at the establishment of an interim grammer between a first and second language. This is an automomous rule governed system based on the Extended Standard Theory (EST).

The questions we propose to address in this study are: a) What are the motivations for choosing the generative model? b) How do we determine the structure of an Interlanguage system?

Since language is a species specific entity, we need a single mechanism underlying all types of acquisition reflecting the universal properties of language generation.

Chomsky (1975) stated that there are many logical grammers which are possible. The best choice of a grammer is determined by how learnable it is. A plausible theory of grammer must have a have a related theory of acquisition. It must contain a minimum amount of technical apparatus which will account for how a speaker comes by the rules. A grammer should contain a small set of rules which can be applied to a wide number of phenomena.

A vital element in the Interlanguage System (IL) we propose to discuss, is the TGG component of Universal (UG) or Core Grammer This describes elements which are universal to languages, and elements which they can select. This component provides the means to find one system of rules which can be applied cross linguistically. It captures the generalities of language since it contains a small set of principles which can generate language particular differences. Language particular grammers can set the

value of parameters from within the limits of Core Grammer. The outward form of the utterance in various languages will exhibit what elements various languages have chosen.

The model used in this study is based on Chomsky and Lasnik (1977) and cited in Baltin A Landing Site of Movement Rules. (L.I. 1982) It is composed of separate but interdependent systems

Base Rules

+lexicon

Deep Structure

Transformations

Surface Structure

Stylistic Rules Logical From.

We need to determine at what points in the grammer language particular differences lie. Linguistic Theory since Aspects has put the onus of power on different components of the grammer. The explanation of certain linguistic phenomena can be achieved by one or more of the following:

1. Phrase Structure Rules: ie the expansion of major categories which will via rules, generate the appropriate surface structures.
2. Transformations: Rules which map deep structures onto surface structures.
3. Language Particular Surface Structure Constraints: This ensures language particular surface structure ordering.

We propose to illustrate that a combination of 1 and 2 will show at what point language differences lie. However it is not necessarily the PS Rules or the transformational rules which account for language particular differences, but the shape of the phrase-marker which allows or blocks the generation of rule. The shape of the phrase-marker provides us with the universal mechanism we are looking for. We can thus avoid language particular output constraints, eliminating the complex technical machinery needed to account for language particular ordering.

By an examination of the auxiliary system in French and English, and the rules of clitic placement in French, we will use as a framework for certain rules of IL, The Structure Preserving Constraint (Emonds TAES 1975). The classes of transformations and the conditions that must be met for the operations to apply, proposed by Emonds, provide the universal mechanism needed to underly the IL model. Language particular differences can be described in terms of the sequential and hierarchical arrangement of the phrase-marker.

A generative model of language reflects the creative aspect of language. In a primary language a speaker uses an internalized system of rules to create novel utterances. It is our contention that the grammer model proposed will be used by the second language learner to create utterances in the Target Language (TL)

The structure of IL will be revealed by the systematic errors of the second language learner reflecting the mechanism that generates them. Certain errors become fossilized. For some reason the second language learner does not seem able to master certain

elements necessary for TL output. In some cases the second language learner will revert to previous errors even after the appropriate output has been mastered. These fossilized and backsliding errors will pinpoint what is constant and what is variable in language. There are certain triggers which are necessary to create the environment of a rule. These triggers are part of the Core Grammer and not present in every language. They are crucial in determining whether a rule can be blocked or generated, which in turn will give rise to the surface structure representation. The second language learner's output will reflect whether his IL has assimilated a particular trigger.

Since the second language learner's output provides a clue to the structure of Il, we would like to discuss the theory of markedness and the predictions it makes for IL.

2) The Role of Core Grammer and Markedness In IL

UG or Core Grammer constitutes the wired in system representing the internalized system of the speaker. " The poverty of stimulus" argument has been explored extensively in the literature. It states that there is no evidence for a rule of UG in the primary data. Baker (1970) states that children do not receive correction for grammaticality. Klima and Bellugi-Klima (1966) show in studies involving the acquisition of negatives by children,correction will not elicit the correct form if the child has not acquired the correct syntactic structure. Often the output of the child shows constructions which do not appear in the the primary data.

The theory of markedness states that the unmarked cases are

those which do not have evidence in the primary data. However marked cases do receive evidence. The unmarked case is the default setting unless there is evidence in the primary data. This theory has implictions for the establishment of IL.

The strong theory of markedness predicts that a child will set paremeter C (unmarked), unless there is evidence to the contrary. Studies of children's errors (Phinney 1975) show that initially children appear from their output to be violating rules of Core Grammer and are assuming marked constructions. However if we consider the factors involved in the environment of a rule, a number of triggers must be present to apply certain rules. An example of this is the rule of subjacency. Correct application of the rule involves the knowledge of embedded sentences with S being embedded under S Bar. Also involved in the application of this rule is the knowledge of what constitutes a binding node. Data Phinney compiled show that children when acquiring the that complementizer appear initially not to contain the rule of subjacency in their grammers. However as they revise their grammers and acquire the appropriate triggers, this appears not to be the case.

The prediction this makes for IL is that the output of second language learners shows this same tendency. We hope to show how the triggers needed to generate the correct auxiliary system in French and English, and the correct order of French clitics will be acquired by the second language learner. The data from second language learner's errors show output which appears initially as marked. Sucessive IL stages will reveal the acquisition of the

correct triggers needed to generate the surface structure of TL. Thus the data will show how a particular rule is derived by the interim stages of IL. Thus the theory of markedness not only makes a prediction for the structure of IL, but offers support for the intermediate stages of children's grammer and IL.

The markedness theory has a second implication for the theory of second language acquisition and the establishment of an IL system. It makes a prediction as to what will be more easily assimilated into an IL grammer. Speakers seem to have a predisposition towards unmarked constructions. Therefore the marked case will be harder to learn. Data in Newmeyer (1983) illustrate that movement of the clitic to the preverbal position in French shows a marked SOV order as opposed to the unmarked SVO word order. Therefore it is predicted that the pronominal system in French is harder to learn from the point of view of the second language learner.

We should now like to offer additional motivation for the support of an autonomous rule governed system as a means of acqusition of a second language. This comes from the existence of other subsystems of language as well as universal processes in language development.

3) Language as a System

a) Subsystems

We have discussed how markedness makes the same predictions for children's grammer and IL. We claim that the existence of a child's grammer revised until it approximates a main system, provides support for the existence of an interim grammer revised by the second language learner until he or she approximates TL.

The similarity of children's errors shows they have a preference for a small number of rules of maximal generality. The overgeneralisation process shows they will use a rule until replaced by another one. They possess the LAD of Chomsky,with all the components but in a limited form. They possess an autonomous rule governed system used to create utterances. The systemacity of a child's grammer shows an interim passage between child and adult language.This makes use of an autonomous system as a transitory mechanism between the first and final stages of acquisition. This makes the same type of device a plausible type of mechanism for second language acquisition.

The main point of comparison between the two systems is the process of rule changing. The structure of the IL is changed in the same way as the child's grammer by the acquisition of triggers needed for the environment of a rule.

A second area of support for subsystems of language comes from studies done on language disorders. It has been shown that the errors of brain damaged patients are not random, but systematic. Although this system is not dynamic in the same way as child grammer and IL, it does offer some support for a an

autonomous subsystem of language.

b) Universal Processes in Language development

American Sign Language (ASL)(1) reveals a dual pattern of phonology and syntax. The hierarchical nature of the configeration of hands replaces the articulatory elements of spoken language. This shows the development of a language with formational components which can combine, as well as inflectional processes and derivational morphemes. The most striking piece of evidence from ASL comes from the fact that the acquisition of deaf children of deaf parents follows the stages of acquisition of their hearing counterparts. Deaf children aged 2 will use uninflected signs for marking person number and gender in the same way as speaking children of the same age who do not mark for person, number or gender.

A second piece of evidence for the universal processes of language comes from studies done by Bickerton (1981) on the development of Hawaiian Creole English from Hawaiian Pidgin English. Syntactic differences between the two cannot be determined in terms of the contributing languages. Bickerton hypothesizes a genetically determined bioprogram directs the system which derives creoles from unstructured pidgeons. This is further underscored by the fact that HCE and other unrelated creoles share the same development of syntactic patterns.

Final support for the existence of an autonomous internalized system of rules in a theory of second language acquisition comes from a discussion of the organisation of language in terms of the organisation of the brain.

4)Neurolinguistic Evidence

Chomsky(2) states that man's ability to develop scientific theories is limited by his biological makeup. Any internalized system must therefore have it's explanation in terms of the human brain. The limits of language are determined by the biological makeup of the organism. Language structure and it's acquisition must be thought of in terms of the development of the nervous system.

There has long been the traditional debate between nature and nurture. Schools of linguistic theory have alternated between the prime responsability of the environment or the brain for language. In other human behavior the interconnecting mechanism of the brain plays a role in the functioning of the organism in it's environment. In support of the TGG model, we can say that the environment triggers a predetermined system of language using the neuronal paths of the brain.The Core Grammer is the wired-in system activated by the appropriate environmental stimulus.

The neurons are fired into action by an environmental stimulus which enables the organism to act accordingly. Information is passed to the correct area of the brain by means of interconnecting pathways each designed for a specific funtion. In this way neurological and linguistic theory complement each other.

There exists an underlying brain organisation vital in the explanation of the interrelationship of language and the brain which is as follows:(3)

Anatomy: Brain Centers.
Neuronal Organisation.

Activity:The train of impulses that travels in some

particular circuit of the neuronal network either spontaneously or as a consequence of the environment.

Signals: These are received from the outside. This stimulates the organism into action.

The interaction of these levels is responsable for the behavior of the organism performed consecutively to a particular activity in the brain structure.

The level and architecture of the cell is basic to the study of the nervous system. The division of the nerve cell into axon, soma and dendrite is important to the whole functioning of the nervous sytem. The prolongated elements of the neuron(the dendrites) interact with other cell bodies through synaptic contacts. The convergence of nerve terminals to or from a given cell body establishes the corresponding links. The essential functions of the nervous system including language function, is determined by intracellular relationship.

There are numerous brain centers involved in language. Two have been singled out as language centers by data from language disorders. Brocas Area is responsable for the processing of sounds that make up words. Wernick's Area is the center for the sensory concept of words. It is responsable for the understanding of the meaning of speech by the deciphering of the pattern of a word. It plays a role in the transition of speech by means of a pattern evoked in the sound of a word This is the phonemic description.

The most important aspect of brain organisation that these two centers illustrate, is how the nerve fibres transmit messages necessary to piece the units of language together. Linguistic

theory starts building up the units of language, beginning with the building blocks, the units of sound. These are arrangeo in sequential units to form morphemes which are again sequentially arranged to form words which are expanded into phrases. There is a connection of fibres which links Wernick's area and Broca's Area via the Occipital Lobe where learned visual aspects of sound are stored. This is a two way connection so that articulated words and sentences have meaning and bring up the sound and visual image given by the word. In Broca's area and the area behind it, the auditory and/or visual image is turned into the muscular pattern needed to emit the word.

Important elements in this discussion are the connectivity of of the nervous system and the specificity of function. The nerves are bundles of fibres. A function is conveyed when electrical impulses reach the top of the neuron and fire a neurotransmitter. The functioning of the nervous system relies on the neurotransmitters to carry impulses accross the synaptic gap which serve as a sort of relay station for the impulses to reach the next neurons. Each bundle of neurons denotes a function.

The brain is thus an interaction of chemical and electrical activity. The neurons which constitute the neuronal code translate the activity from outside by means of electrical signals.This chain of activity causes the neurons to fire into action. The neuronal code is responsable for the interpretation of the perception of the outside word by means of these electrical and chemical signals.The neurons detect, interpret and act upon a pattern of environmental stimulus and inward occuring

events. It is not a direct interaction of the brain and it's surroundings, but the functioning of the organism is accomplished by the intervention of chemical and electrical coding systems.

The brain is functionally and structually specialized, each component of the brain having a particular function. The essential structural relationship involves neurons, neuronal processes, synapses and brain centers. It is this relationship which relates the input Grammer and output. In this way the neurons and their pathways cause the various centers of the brain to function, triggering the predetermined system of the TGG model.

The prediction that this makes for the model of an interim grammer involves the establishment of a grammer as a construct of the human brain. The same elements are present in all languages, therefore it is plausible that the same mechanims employed by the organism in the production and acquisition of a primary language, are present in the acquisition and production of a non-primary language. This emphasizes the need for some form of predetermined system accountable in terms of the processing by the human brain, but which allows for variation.

The development of the nervous system plays an important role in a theory of second language acquisition. We hypothesize that both children and adults possess an IL system. Any difference is due to the maturation of the organism.

We refute the Lenneburg hypothesis which claims that laterisation of the hemispheres is respnsable for the end of acquisition after puberty. We base this on The Selection Stabilisation Hypthosis of Jean Pierre Changeaux,(4). This states that the synaptic contacts in relay stations between cells stabilize during maturation. This accounts for the plasticity of the system to develop specificity in it's contacts and allows for the input of new systems. The nervous system of the child allows for accumulation of information as the wiring becomes more complex In the adult wiring system, each projection has it's function and will not allow for the accumulation of new information in the same way. The adult system has to adapt the wiring already there.

Lamendella (1975) relates neurophysical functioning to language acquisition. He calls the developmental stages infrastages and the information from the environment infrasystems. During stages of development certain anatomical components are present, but not functioning. The specificity of the brain's circuitry must be made operational for language to function. The ability to develop new infrasystems must be made operational within a certain time frame. If not, then infrasystems cannot be acquired in the same way. We feel that an explanation of second language acquisition in terms of "wiring" seems more plausible

than one which states that after laterisation acquisition is not possible. This allows room for adult second language acquisition, even though the approach may be different.

A second factor which provides an accounting of the differences between a child's approach and an adults, but allows for the adult to master a second language ,is the existance of two autonomous but related neuronal systems at differenct levels of the brain that mature in sequential processes.(5) These are the The Communicative Hierarchy and the Cognitive Hierarchy. The Communicative Hierarchy involves perception and production and is part of a metasystem made up of different levels and constitutes part of the communicative pattern. Whereas The Cognitive Hiearchy involves intellectual processes of problem solving techniques based on formal operations and is at a higher level and has a later development tied in with the end of the mobility of brain development. The development of the neurofunctional systems occurs in descrete automomous stages. There is a transition between new information and old systems. One schemata is transfered to another domain and can result in incorrect performance. The adult will gradually reset his parameters transfering infrasystems which have been made operational for primary language acquisition, whereas the child's immature neurofunctional system has more potential to develop new infrasystems. He or she will approach the task differently, modifying IL in the same way as LAD. We predict that the adult because of the development of the higher level neurofunctioning domain, will rely more or problem solving devices.

We thus feel the Interlanguage system will substantiate Lamendella's claim for a sensitive period as opposed to the traditional critical period posited for second language acquisition. The sensitive period occurs when the mobile stage of development ceases and the higher level processing takes over. This results in a different, but tenable approach to second language learning on the part of the adult.

The discussion so far has centered on the motivation of a generative model of an Interlanguage system. In the next section we will to discuss some of the hypothetical rules we propose for the IL system, based on a cross linguistic analysis.

4) Interlanguage System

a) General Overview.

We would like to outline the Emonds' proposals which form the basis of our IL model.

Emonds proposes: The Structure Preserving Constraint which is designed to preserve the characteristics of the phrase marker as generated by the base rules. The constraint involves the environment of the application of a rule. It restricts operations in terms of the sequential and hierarchical relationships of elements on a phrase-marker. The phrase-marker must be shaped in such a way that operations can be performed on a certain portion of the tree which must meet certain configerations.The constraint restricts transformations to two types of transformations: Root Transformation and Structure Preserving Transformation.

The root transformation applies to elements generated by the expansion of root S. Thus it specifies a class of rules involving

elements belonging to a certain portion of the tree. For example rules which involve the first NP can only contain elements which are dominated by the highest S. The expansion of the elements of S provides the environment of the rule. The structure preservi- transformation protects the shape of the phrase-marker. It operates on a constituent ie NP in a position where the same constituent NP is otherwise generated by the grammer.This means that the grammer does not permit a configeration not generated by the base rules. The phrase marker can in the initial generation contain dummy elements. This as we shall see in the analysis made later on, provides a source for language particular elements. The inclusion of these dummy nodes cannot permit a configeration not generated by the PS rules. This still enforces the uniformity of the phrase-marker, but does allow for variation. In order to avoid the type of node as an ad hoc solution Emonds makes the the further priviso that they are filled or deleted before surface structure representation. Thus the nodes serve a purpose and the deletion or retention not only makes a statement about the relationship of elements, but also about specific syntactic properties of language particular elements. In addition to these two types of trans., Emonds allows a minor one called a Local Transformation. This only effects adjacent constituents. The crucial factor is that operations are performed on adjacent consituents when no other elements of the phrase marker are involved, since the structural description for the input to the rule does not contain any variables. It distinguishes certain operations, since not all adjacent constituents can be inolved in

local transformations. The division of labor between the structure preserving transformation and the local one plays a role in describing the different syntactic properties of language particular elements.

The applicability of the constraints outlined and the classes of transformations depends on the phrase structure rules. Since we are claiming that the shape of the phrase marker and the rules it permits figure largely in the model of the Interlanguage system, it is important to clarify what a possible set of base rules is.

Emonds does not depart radically from the basic tenets of the XBar theory (Jackendoff 1977) which allows for intermediate categories between lexical and phrasal categories. A key notion is the head of a phrase which must always be present and is subcategorised for complements. The stipulation of the level at which the head must appear bears a relationship to what it subcategorises for.

However the superiority of the Emonds' theory is that it does not describe phenomena in terms of well formedness of the initial representation only. This is not sufficient to describe the the varying linear order of surface structure representation, especially cross linguistically. The proposals outlined provide the small set of principles needed to capture a wide number of generalisations. In addition they provide a unified mechanism to explain different syntactic properties of units.

We feel the Emonds' proposal can form the basis of the IL system since it shows the existence of one predetermined unit ie the phrase marker. The shape of this structure is determined by

the rules that generate it. The linear order of the surface structure representation is dependent on the shape of the phrase marker and the place where rules can apply. We can begin to examine the phrase structure rules and the shape of the phrase marker. This will tell us how subsequent derivations can be made. This should tell us at what points language particular options might occur. We can compare the TL and NL phrasemarkers and arrive at a possible structure of the IL model.

Since we are claiming that second language learners' errors will reflect the structure of the stages of IL, we hypothesize the framework we have selected will show where reorganisation takes place. The errors will reveal when the triggers are needed to create the correct environment for a rule to be generated.

b)An Analysis of Cross Linguistic Constructions.

We propose to examine different surface structure configerations in French and English which require strict linear ordering. We want to illustrate how the composition of the phrasemarker can show what options languages have selected and whether they have the elements necessary to create the environment for a rule to generate a particular surface structure.

In English we need to account for the strict ordering of the sequence of the auxiliary verbs and account for the properties of modals.

In French we will examine the behavior of the various types of clitics and account for their ordering in surface structure.

To recap some of the preceeding discussion, we need to bear the following points in mind when considering the following analysis:

1) The importance of the conservation of the phrase-marker, as a unified generating mechanism. Special emphasis is placed on the priviso, that an element cannot not be inserted into a category not otherwise generated by the PS rules. If an element is not there, then the subsequent derivations cannot be made. Thus a different progression will result in a different surface structure.
2) The choice of elements that make up the phrasemarker is important in ensuring it's shape. These can be selected within the limits of the core grammer.
3) The generation of dummy nodes allows for language

particular elements while conserving the structure of the phrasemarker. The priviso that they be filled or deleted by surface structure ensures that the basic framework we have been claiming for IL is conserved.

4) The classes of transformations must be performed at certain levels and on certain configerations. If the conditions are not met then a different surface structure will be arrived at.

Let us outline some of the points peculiar to the auxiliary system in English which must be accounted for by the rules:

1) There exists a distinct class of Modals which exhibit different properties from the class of lexical verbs.
2) The behavior of 'have' and 'be' both as auxiliary verbs and lexical verbs with VP complements.
3) The existence of the tense bearing verb 'do'

Tables 1 and 2 show the rules for the generation of the auxiliary system in English, and the predictions they make for the derivation of the appropriate surface structures. These are based Emonds (TAES chapter 6)

TABLE 1

Rules For The English Auxiliary System

PHRASE STRUCTURE RULES

S ⟶ COMP NP (AUX) (EMP) VP

AUX ⟶ $\begin{bmatrix} + \\ -\text{TENSE} \\ + \\ -\text{PAST} \end{bmatrix}$ - (M)

VP ⟶ V TENSE

TRANSFORMATIONS

Do Insertion

X + [AUX-TENSE-ϕ]-3 ⟶ 1-[v do]-3

Verb Raising (STRUCTURE PRES.)

X+TENSE [v do]-v [be-ϕ]+Z ⟶ 1 4 3 ϕ 5
[have+en]

where y does not dominate V

Do Deletion

X-[v do]-VP+Y ⟶ 1 ϕ 3
where DO is not contrastively stressed

To Insertion

X-ϕ-V [tense Δ]-Y ⟶ 1-to-3-ϕ-5

Affix Movement

X-TENSE Y V Z ⟶ 1-ϕ-3-4+2-5

MAIN MOTIVATION: SPECIFIES THE ROLE AND THE BEHAVIOR OF THE FIRST ELEMENT (VERBAL) IN VERBAL SEQUENCE AND PREDICTS THE CORRECT ENVIRONMENT FOR RULE APPLICATION.

TABLE 2

Principles and Predictions

CATEGORY AUX

MAIN ROLE ----- SPECIFIES THE ROLE AND BEHAVIOR OF FIRST ELEMENT IN CLAUSE AND PREDICTS THE CORRECT ENVIRONMENT FOR RULE APPLICATION

I) Aux as First Element In a Phrase

A) Input to SUB/AUX / Rule (inversion around subj NP)

i)Modals
John can come tomorrow
Can John come tomorrow.
ii)verbs be and perfect have
used as auxiliaries (first element)
Was John doing his homwork?
Why had John left?

B) Dictates what Elements can follow AUX

i) Verbs--aux use of HAVE and BE
Our prices are being quoted daily (=14 TAES)
Those desks may have been cheap
ii) NEG and NEG CONTRACTION follow AUX
John would not come home
John wouldn't come home.

II) AUX and VP Expansion

Allows the distinction in the behavior of HAVE and BE as auxiliary verbs and as syntactic main verbs in DS similar to verbs of temporal aspect (begin, start finish)
John began doing his homework
*John beginning doing his homework
John is doing his homwork
*John was being doing his home work

III) AUX and DO INSERTION AND VERB RAISING

A) DO Inserstion

AUX node permits insertion of do obligatory when there is no deep structure model predicts do won't proceed a modal or any other auxiliary verb.
Did John like Fred?
*Did John be have come?
*Did John would comes?

B) Verb Raising

Verb raising depends on AUX node. Predicts characteristics of AUX verbs

i) Raising HAVE BE (auxiliary use) raising confirms auxiliary status of verbs
Has John come home?
Was John leaving soon

ii) Absence of AUX-predicts behavior in AUXLESS clauses ie present subjunctive--no verb raising negation follows first element.
John requests that he not be fined
John requests that he be no fined

IV Affix Movement and +Tense -AUX and +Tense +AUX

A) Generation of +Tense-AUX

i) Non empty tense Node is source for (have-en-V) (be-ing-V) Verbs of temporal aspect (began-ing VP)

ii) Empty tense node
To Insertion see (was seen to)

B) Generation of +Tense+AUX

source for(ed s)
John Tense like tennis
John lik+ed Tennis

C) Affix Movement

Either in AUX (be have do) (local)
or into lower VP

The postulation of the AUX category and it's expansion is the most important factor from which subsequent acquisition of the entire English auxiliary system will follow. This category specifies which is the first element in the verbal sequence and and is vital to the restriction on ordering and behavior of the sequences of verbs belonging to the English auxiliary system. The phrase-marker can be constructed in such a way that transformations always move the correct verbal element.

We should like to point out that AUX is a category in UG, which need or need not be selected by language particular grammers. Therefore the suface structure of languages which do not select this category will reflect it's absence in a systematic way. We refer readers to Akmajian, Steele and Wasow (L.I 1979) for a more detailed anlaysis of the AUX node.

Tables 1 and 2 show that the existence of the category AUX makes predictions about the syntactic properties of auxiliary verbs in English.

a) Tense Bearing DO. The presence of AUX predicts the properties of this verb and ensures the correct position of DO [Item 111A table 2)

b) AUX provides a source for a Verb Raising rule to apply and thus allows the grammer to generate have and be: a) as auxiliaries and b) as lexical verbs.

We have stated that surface structures in languages with no AUX reflect this. This applies in English in so called AUXLESS PHRASES such as the present subjunctive.The way the PM is shaped

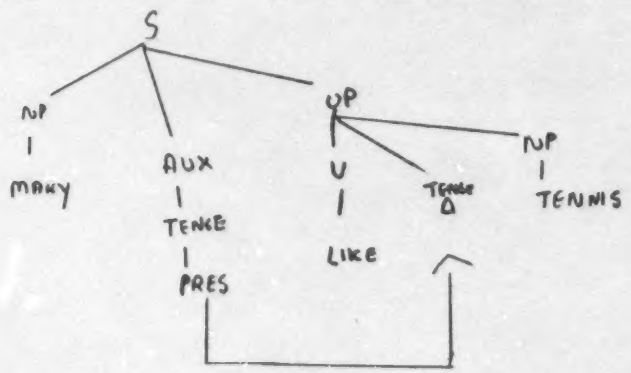
makes the correct predictions. The negative element which follows AUX will follow Be. Verb raising cannct take place sirce AUX is is absent and there is no node into which to move the verb. This is illustrated in item (ii) of IIIB on table 2.

We would like to discuss the generation of TENSE under this system and the predictions that dummy nodes make for language particular elements.

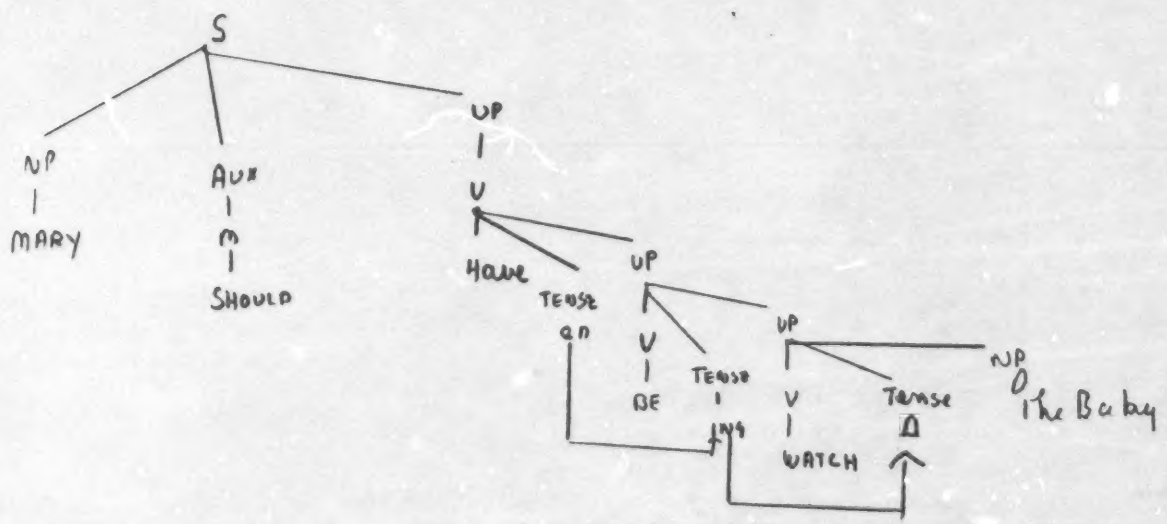
After various rules have applied, DO insertion, VERB raising, SUB/AUX inversion and DO deletion, we need to assure that the affixes are moved to the correct verb.

The following trees represent how tense is generated. This accounts for some of the syntactic phenomena particular to the English auxiliary system:

A)



B)



We can see from these trees that TENSE in English can be generated as an:

a) Expansion of AUX

b) Expansion of V---V TENSE

The generation of TENSE in b) allows a source for the the suffixes ing and_en. These must have some source in the base since affix moving is a structure preserving rule and cannot move a constituent into a category not generated by the base. However, an empty category must be motivated independently by the grammer. It must also be filled by surface structure. This fact makes a generalisation about classes of English verbs.Emonds proposes a rule of TO insertion. This will fill TENSE in VP if has not been filled by the other affixes. This divides verbs in English into two classes.
After affix movement all verbs in English at surface structure either exhibit TENSE suffix (ed,s_ing_en) or the infinitive to, but not both.This last rule will account for constructions such as MAKE_NP_VP as in WAS_MADE_TO. It also accounts for verbs which follow AUX, but where to has been deleted somewhere in derivation.

We will now describe some salient characteristics of the French auxiliary system in conjunction with the clitic system and try to show how the frame work we have chosen for IL makes predictions about these constructions.

1) The main auxiliary verbs are avoir_and être. Included in the category V are such modals_as pouvoir 'can' vouloir 'must 'They exhibit the same characteristics as lexical

verbs such as inflection, tense. etc., therefore they can be considered in the same class as V.

2) We have to account for the position of negative sequences such as ne--pas ne--point ne--guere where NEG appears to the right of present participles and finite verbs, but to the left of infinitives

3) The left/right position is extended to a class of adverbs such as bientot 'soon' sans doute 'probably' souvent 'often'etc.

4) There exists in French a tense called le surcompose which contains sequences such as avons été lavés

Tables 3 and 4 show rules for the French auxiliary system and the predictions they make.

TABLE 3

RULES FOR THE FRENCH AUXILIARY SYSTEM.

PHRASE STRUCTURE RULES

S → NP TENSE VP
VP → (NEG) (ADV) V'
V' → (V') V

TRANSFORMATIONS

Finite Verb Raising
NP-TENSE-X-V-Y → 1-4-+2-3-ϕ-5

TABLE 4

Principles and Predictions

MAIN MOTIVATION: GENERATION OF TWO SUCESSIVE VERBS IN ONE CLAUSE
ALLOWS FOR TREATMENT OF MODALS AND LEXICAL VERBS
AS ONE CLASS (V)

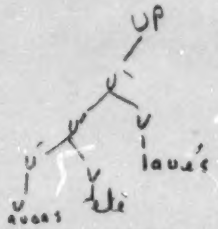
1) Expansion of VERBAL COMPLEX V' (V') V

A) Accounts For the Past Participle Form

Context----V past part.[v'V------]
allows for context of past participle
forms to be stated by local transformation
V + V - $\emptyset$ $\rightarrow$ 1 - en (ie. V past part./V---)

B) Permits Exclusion of Main Verbs in Auxiliary Positions

Based on definition of LEXICAL HEAD OF PHRASE and
RESTRICTION ON LEXICAL INSERTION (IE lexical formative
can be only be dominated as a lexical head) and the
proviso that AUXILIARIES must be GRAMMATICAL FORMATIVES
left branching V' can never dominate lexical head of VP
and can only dominate grammatical formatives



AVONS ETES LAVES
LAVES = LEXICAL HEAD
CAN ONLY DOMINATE LEXICAL MATERIAL
V' (LEFT BRANCHING) DOMINATES AVONS (GRAMM FORMATIVE)

II) TENSE Expression.

i) TENSE as daughter of S expresses significant
generalistions in French
ii) allows statement of rules for deriving present
present participles and infinitives

III) NEG placement and FINITE VERB raising

i) allows for assigning base position for
NEG = PAS PLUS POINT GUERE
ii) accounts for the position of certain adverbs
TOUT BIENTOT SANS DOUTE etc.

These are based on Emonds TAES chapter 6 and also on Verbal Complex (L.I. 1978). The auxliary system is much simpler than the one in English. To account for the characteristics we mentioned above, the system must generate two successive verbs in a phrase, especially in view of clitic placement rules. The principles of the Xbar system outlined allow languages to expand categories within in the limits the principles convey.

The left branching hypothesis proposed by Emonds expands the VP within the limits of UG to account for many of the properties of auxiliary system. The notion of head of phrase and the material it dominates as in item b of table 4, distinguishes between the auxiliaries as grammatical formatives and predicts that the verbs of minimal semantic content are generated in the correct position. It also prevents free lexical insertion under the left branching V'.

From this initial expansion other predictions will follow

a) Expression of TENSE : This is generated as daughter of S The generation of NEG and TENSE in the positions outlined in the table allow these sequences to be generated in the correct position. The verb raising rule predicts that certain adverbs and NEG will appear to the left of infinitives and the right of present participles and finite verbs.

b) The organisation of the Verbal complex allows for the root transformation of Subject Clitic Inversion.

French clitics consist of pronominal objects and certain adverbial phrases. The most important characteristic of these elements is their position relative to the verb, They can appear in the following positions:

a)Preverbal position: They form a constituent with the verb following it.

b) Post Verbal position: In Imperative phrases.

The same system which generated English auxiliaries, can account for strict ordering of these elements as well.

Tables 5,6 and 7 show the rules for French clitics and the predictions they make. These are based on Emonds (TAES chapter 6) and on The Verbal Complex (L.I 1979)

TABLE 5

Rules for French Clitic Placement

PHRASE STRUCTURE RULES

$$V' \rightarrow \begin{pmatrix} V' \\ (PRO)-(CL)- \end{pmatrix} \quad -V$$

TRANSFORMATIONS

Intrinsic Reflexives

$$X \quad np- \quad \begin{matrix} PRO \\ III \end{matrix} - Y - v'[pro\ soi] - Z \quad +W \longrightarrow 1-2-3-2-5$$

LE, LA, LES RULE

$$X\text{-}V' \quad \begin{bmatrix} PRO \\ +III \\ -REFL \\ \alpha\ PLUR \\ NP\ FEM \end{bmatrix} -Y \longrightarrow 1 \begin{bmatrix} DEF \\ PLUR \\ FEM \end{bmatrix} +2-0-4$$

Pronominal Clitic Placement

$$X - [v[pro\ \Delta\ ]-Y] \ +Z-[np(\grave{a})-PRO]-W \longrightarrow 1 \begin{bmatrix} 5 \\ -FEM \end{bmatrix} -3 - \phi - \phi - 6$$

Table 6

CLITIC PLACEMENT RULES

SURFACE ORDER RESTRICTIONS

Traditional accounting of ordering

[Non-third-person and all reflexive object clitics (direct and indirect)] - [Third-person non reflexive clitics (LE LA LES)]

[Third-person non-reflexive indirect object clitics (LUI LEUR)] - [Adverbial clitic corresponding to locational PPs and other PPs of of the form a+NP]

[clitic(EN) corresponding to phrase of the form de+NP] -VERB

UNDERLYING FORMS OF PRONOUNS IN NP POSITIONS (objects of P)
(strong forms)
MOI (M or unmarked for gender) NOUS (M. or un marked for gender) first pers.
TOI (M or unmaked for gender) Vous)M or unmarked for gender 2nd pers.
SOI (M.or unmarked for gender) SOI (M or unmarked for gender) 3rd pers reflx.
LUI (M. marked for gender) ELLE (F. marked for gender) 3rd pers.
EUX (M. marked for gender) ELLES (F. marked for gender)non reflx.

generated by rules:

NP → (DET N-...) / PRO

PRO → [α PLURAL, β FEM., γ111]

[PRO, +111] → αREFLX

[PRO, -111] → [γ111, +REFLX]

TABLE 7

Principles and Predictions

MAIN MOTIVATION; SHOW GENERATION OF CLITICS AND DISTINGUISH FORM OF CLITICS

1) Expansion of VP as input to rules.
   i) CL node distinguishes pro pp clitics EN AND Y. Existance of CL node predicts the behavior of the adverbial clitics and predict that sequences EN+Y Y+EN do not appear
   ii) PRO provides 'location' on the phrase marker which within the structure preserving framework accounts for the movement and features of different types of clitics.

11) Intrinsic Reflexive
accounts for a prominant constructrion in French verbal system. This rule copies feature of grammatical person and number from Subject NP onto this node (PRO) determines surface form of nodes which appear in nodes PRO CL

111) La, La Les Rule
i) describes ordering (only LE LA LES preverbal object pronoun clitics can appear with another preverbal clitic)
ii) accounts for distinctive form of these clitics
iii) accounts for fact that they are only ones's marked for grammatical gender
1V) Only preverbal clitics with 'case' (absence of P in deep structure source.

1V Pronominal Clitic Placement

After the previous rule, all other clitics can be accounted for, by the Pronominal Clitic Rule.

V Predictions for final Surface Structure Ordering

After Rules in (11) (111) (1V) have determined the type of clitic involved in the transformations, and if any rules of EN and Y insertions need be applied then the configerations can provide the correct input to the Root tranformation of clitic-imperative inversion and the local transformation of clitic interchange to produce the correct surface forms.

A key element is the expansion of VP including the categories PRO AND CL. The generation of these elements in the base not only provides a source for the various clitics in French, but ensures that the various types of clitics have a node to move to. The way the phrase marker is constructed makes predictions about the syntactic properties of clitics. The correct environment of the rule predicts what clitic can be inserted. Table 7 shows us that depending on whether CL is empty of filled,we can make the right prediction about the sequences containing y and en. The three rules THE INTRINSIC REFLEXIVE, THE PRONOMINAL CLITIC PLACEMENT RULE, and LE LA LES RULE are good examples of how the system works. There are a large number of French verbs which have a obligatory relexive objects. Thus PRO provides a source in the base for intrinsic reflexive clitics. However when it is empty it provides a position for the clitics moved to a pre-verbal position by the PRONOMINAL CLITIC PLACEMENT rule. Emonds sees this as no mere coincidence that the generation of the node PRO provides one source for two rules. The distinction between two types of transformations accounts for a third category of clitics Le la les. Table 7 shows the characteristics of these clitics. A local deletion insertion rule preserving gender marking will distinguish the particular characteristics of these clitics from other pronominal object clitics. The construction of the phrase-marker allows for two different rule environments to be created, one allowing a local transformation for LE LA LES clitics and a structure preserving transformation for other pronominal object clitics. The division of labor between the LE LA LES Rule

and the pronominal clitic placement rule distinguishes between the different syntactic properties of yet another type of clitic.

We feel that the preceeding discussion of the auxiliary systems in English and French, and rules for clitic placement in French have illustrated that a set of restrictive principles can account for a wide number of phenomena. The four points previously outlined, show the importance of the shape of the configeration which acts as an input to rules. The surface structure representations are dependent on whether certain configerations meet the criteria needed to create the environment of a rule.

This is exactly what we predict for the structure of the IL system. The main assumption is that the innate knowledge of the second language learner contains the sequential and hierarchical expansions of the initial categories which make up the shape of the phrase marker, as well as the conditions they must meet to fit the appropriate environment for rule application.

We argue that the choice of categories and the mode of expansion as well as the fit of the phrasemarker is the basis of IL. It is similar to a puzzle, whose pieces must fit together in a particular form to generate the whole picture.

Table 8 shows the universals which underly the model proposed for the IL system.

Table 8

Basic Universal Framework

1) Languages possess same mecanism for sequential and hierarchal expansion.

ex. $X \rightarrow X\ Y$
$Y \rightarrow Z\ L$
$Z \rightarrow P\ Q$

2) XBar Notions---expansions of intermediate levels.

$H'' \rightarrow X_1\ H\ X_2$
$H' \rightarrow X_3\ H\ X_4$
$H'' \rightarrow PRO$ [H'' = NP, VP PP etc.]

X = variable
H H' H'' = head of phrase
whichever has the fewest primes on right side of the rule is head on left side of rule.

3) Language particular elements can undergo
   a) Insertion
   b) deletion
   c) Movement.

4) Constraints needed to conserve the Phrasemarker.

Given that we have a hypothetical set of rules as in 1), we want to avoid a change in the phrasemarker such as movemnet of Q into X.

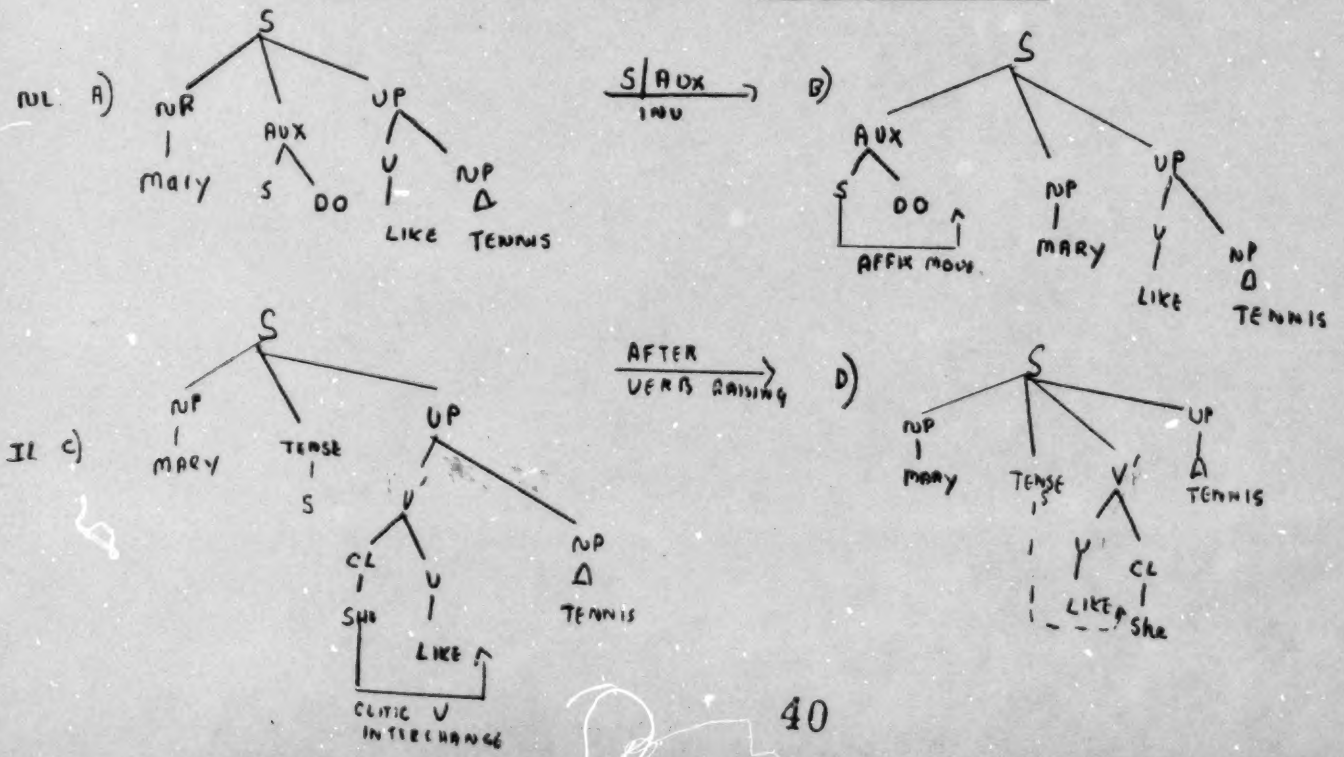
   a) Structure Preserving transformation will not allow an expansion X--Q Y X, since this is not generated by the Base Rules. We cannot have a dummy node in this expansion since there must be independent motivation for it's existance
   b) Local Transformation involves elements such as X&Y, Z&L, P&Q.
   c) Root Transformation only involves elements X and Y.

c) A Comparison of IL and TL Phrase-markers.

We propose to construct a number of phrase-markers which will generate errors made by the second language learner. We will demonstrate the structure of both IL and TL phrase-markers. The IL phrase-marker will reveal an initial sensitivity to NL. We hope to show what triggers will be needed to acquire the correct output in TL.

In Tables 1 and 2, we showed that the category AUX was crucial in the generation of the correct sequences found in the English auxiliary system. We predict a number of errors will reflect that the French second language of English will try to generate these auxiliary sequences without AUX.

Phrase- markers 1 (c) & 1(d) show how the beginning French second language learner will generate the output of the question: Does Mary like tennis?. We predict that the phrase-marker will be constructed in such a way that it will generate : Mary, likes she tennis. Phrase - Marker 1



The errors occur because of the following elements shown in phrase-marker 1(6):

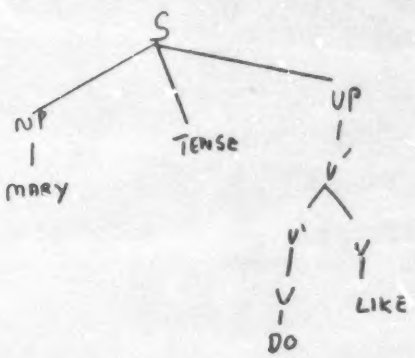
a) The expansion of S does not include AUX

b) The presence of the clitic in the expansion of the verbal complex.

We predict that the way he or she will construct the PM will not allow the rule of Do insertion to take place. This will block the subsequent rule of SUB/AUX inverstion involving subject NP and Do (under AUX) both dominated by Root S. He or she however, will be able to apply clitic inversion and tense interchange.

An alternative explanation would be to state that the verb Do is treated in the same way as avoir and être and considered as a verb of minimal content, with the phrase-marker constructed in the following manner.

Phrase-marker 2.



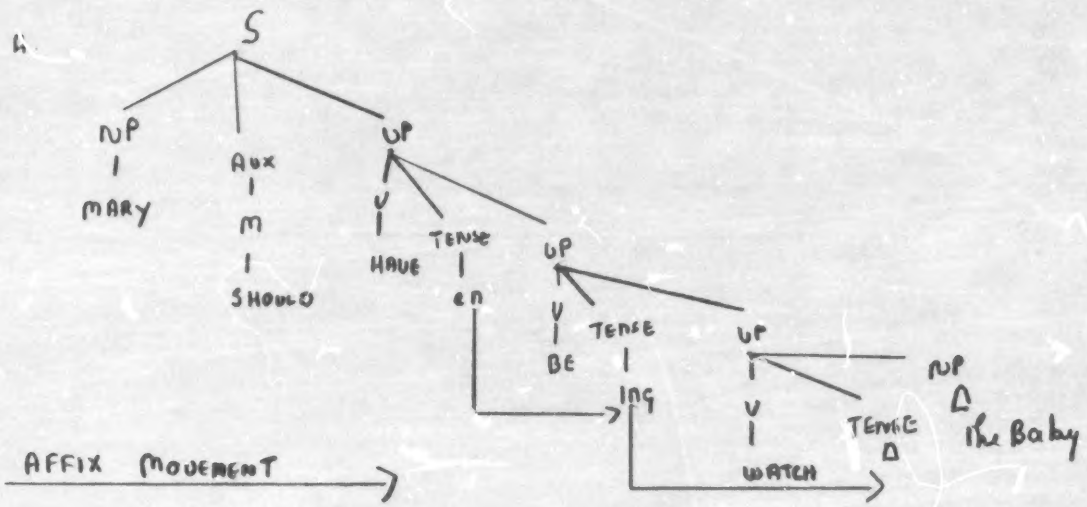
Evidence from studies such as the one on Spanish speakers learning English, by Barry Taylor (1975) seem to support the total omission of Do in negative and interrogative sentences.

We propose now to illustrate how the IL system we have been describing, will generate the following sentence:

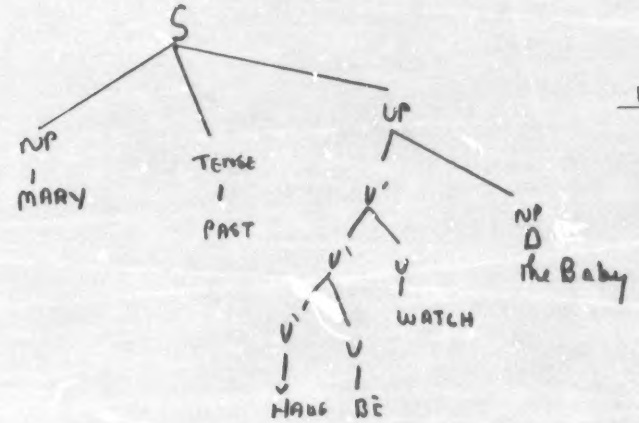
Mary should have been watching the baby.

PHRASE - MARKER 3

TL A

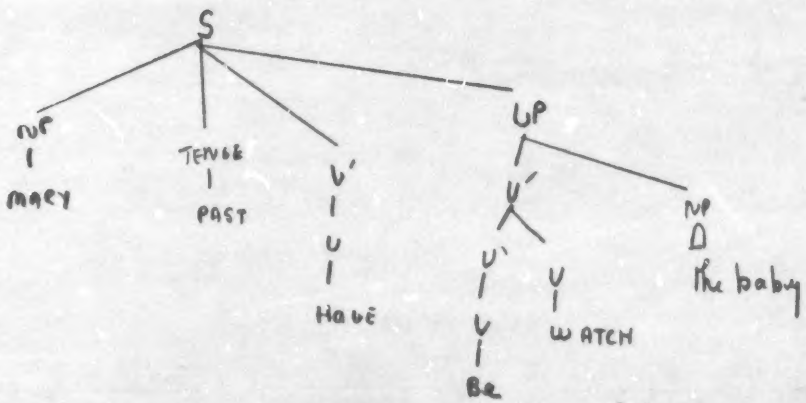


IL B



VERB RAISING / TENSE INTERCHANGE

c)



Phrase-marker 3 (a) is constructed so that it generates the correct sequence of (M)=should+have+be+en+watch+ing. Tables 1 and 2 show that the rules for the English auxiliary system will generate the correct sequence, predicting which is the first element of the verbal sequence. The tables also show that the PS rules generate TENSE as an expansion of VP thus providing an adequate source for ing complement. The first verbal element is in the corrrect position to allow the rule of SUB/AUX inversion to take place, thus ensuring Should Mary have been watching the baby? will be generated.

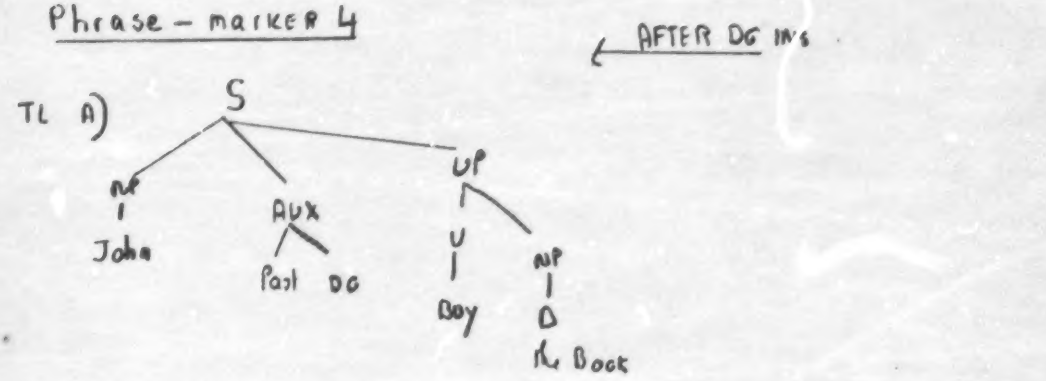
The organisation of the verbal complex according to phrase-markers 3 (b)&(c) does not allow the correct sequencing in English.As in the first example, AUX node is omitted. We predict that, Have will receive TENSE, since the French VERB RAISING rule can apply in this environment The rest of the sequence will be generated in a similar manner to item 1B of Table 4 to give had been watched. The predictions for the application for the rule of SUB/AUX inversion are the same as in our first example of learner's errors.

The complete acquisition of the verb do poses problems in both first and second language acquisition. Klima and Bellug-Klima (1966) note that children acquire all features of do after the other models. We feel that a number of errors can be explained by the way in which the phrasemarker is structured. These can occur after the French language learner has acquired the category AUX, but not the it's correct expansion.

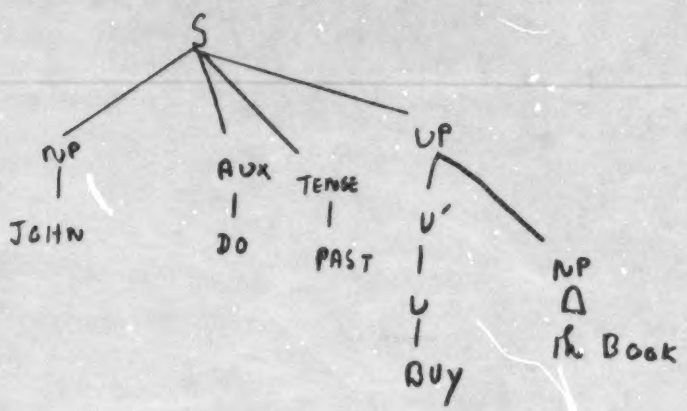
Our first example deals with do, not inflected for TENSE.

Phrase-markers 4d,e,f show that the main verb is tensed instead of the auxiliary. Phrase-markers 4a,b,c generate the correct output Did John buy the book. PMs 4d,e,f generate Do John bought the book?. The total regorganisation needed for the correct generation of the English auxiliary system is not yet complete.

Phrase - marker 4

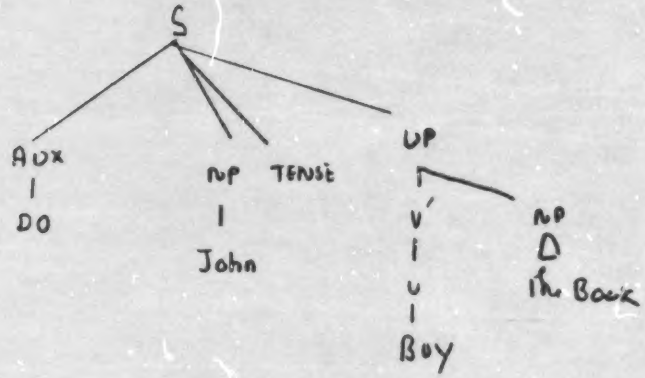


(IL D)



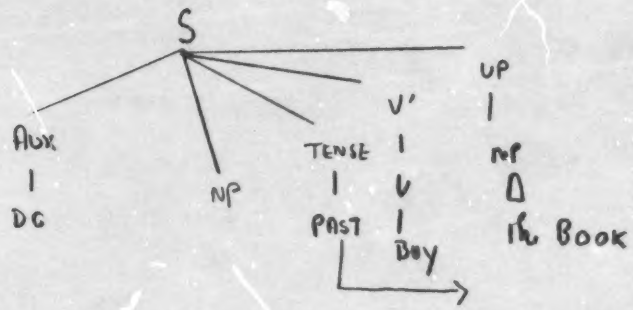
SUB | AUX INV →

E)



VERB RAISING
TENSE INTERCHANGE

F)



Taylor (1974) states that a large number of errors of Spanish learner's of English involve tensing the main verb in constructions containing the verb do, which seems to lend support to the structure of phrase-markers 4d,e,f.
TENSE is generated as a daughter of S, and moves into V'

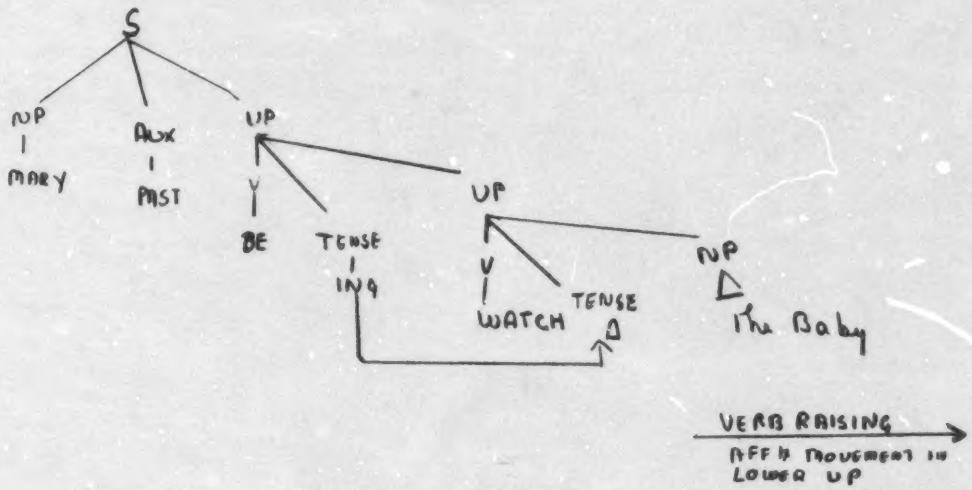
This applies after SUB/AUX inversion and thus the structural description for French VERB RAISING and TENSE interchange described on table 4 is still met.

The next source of error involves the verb do and the English VERB RAISING rule. Emond (ch.6 TAES) describes this rule as accounting for many of characteristics of auxiliary verbs in English. The main point of interest for the purposes of the IL system is the fact that do can only occur with main verbs in interogative and negative clauses, and not with BE when it functions as an AUX verb.Phrase-marker 5 shows the TL and I1 phrase-markers for the following:

Was Mary watching the baby? Did Mary be watched the baby?

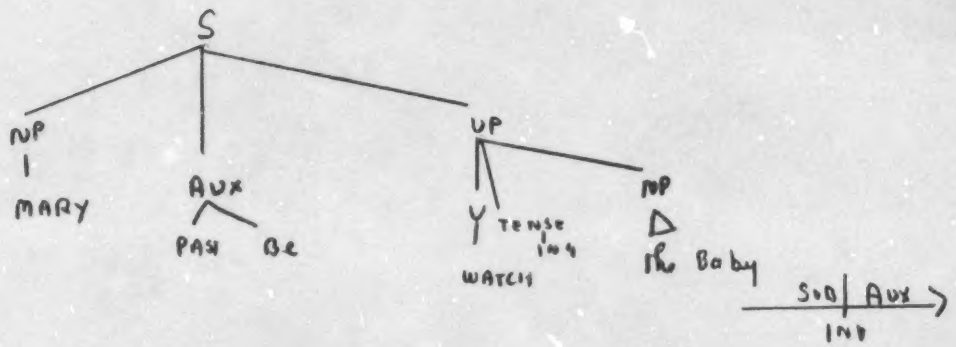
Phrase - marker 5

TL a)

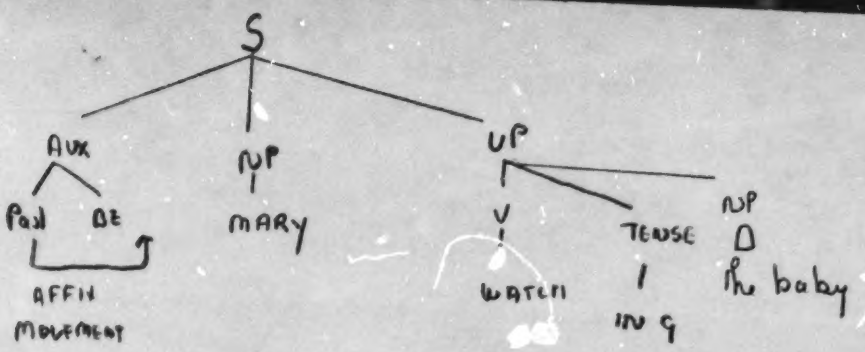


VERB RAISING
AFFIX MOVEMENT IN LOWER VP

b)

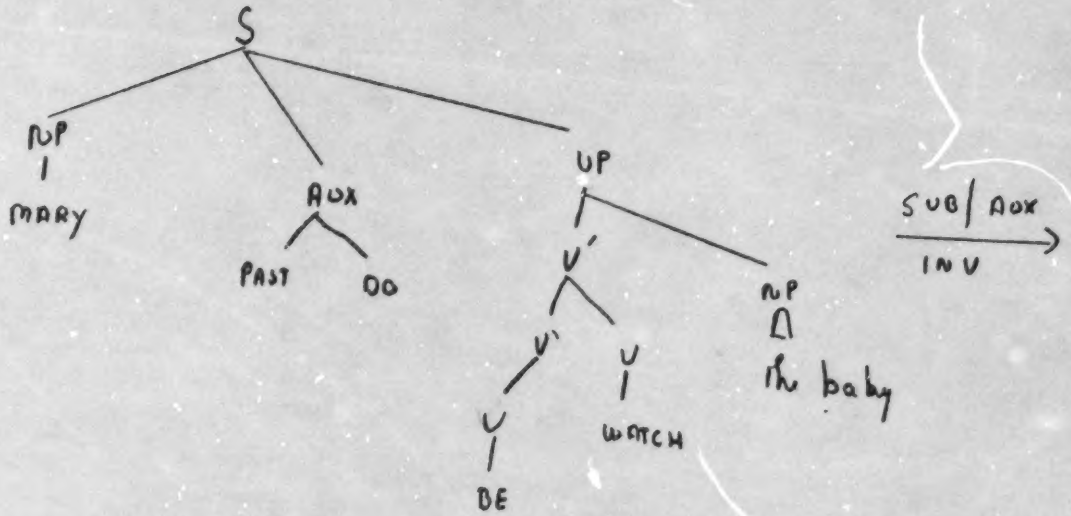


c)

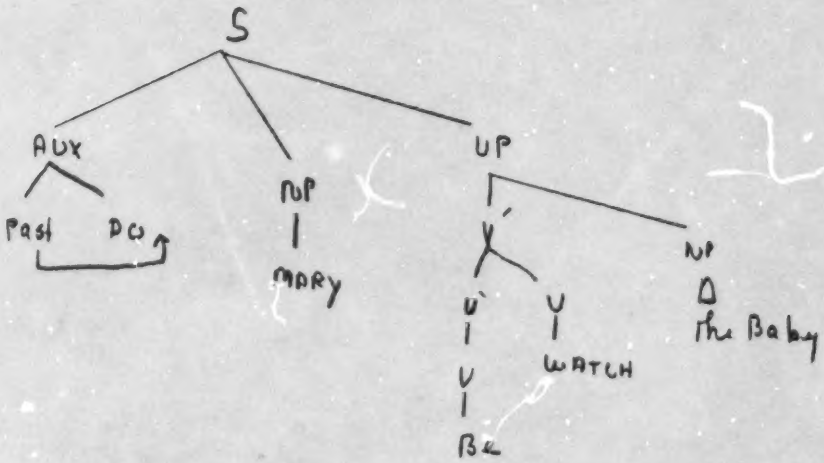


IL

D)



E)



V → Past Part [V' V']

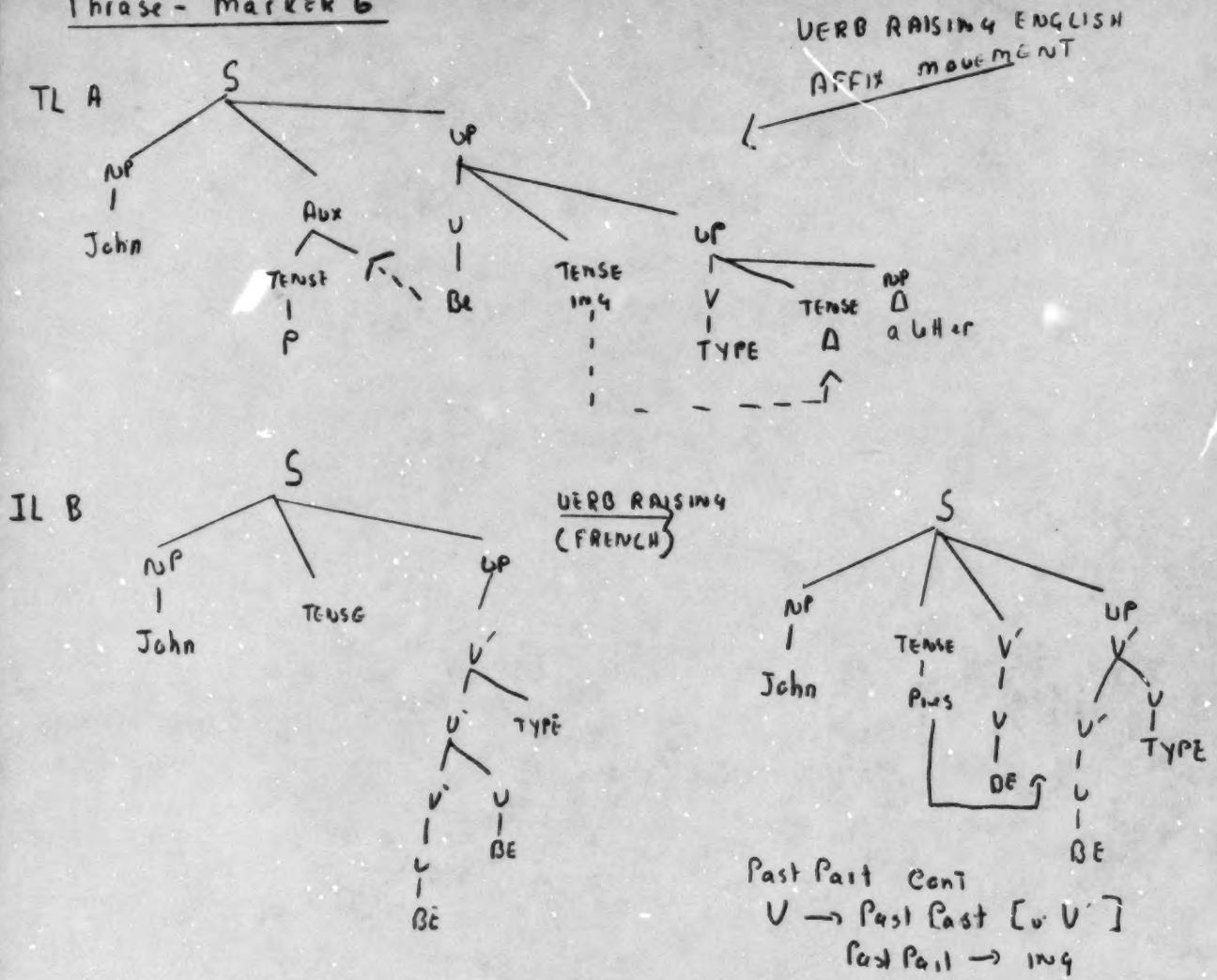
Past Part en or ing

We predict this error will occur once the language learner has acquired AUX, and it's expansion, but has not acquired all the conditions for the VERB RAISING rule in English. Do is placed in in AUX and is tensed. SUB/AUX inversion can apply. Be is generated under V' V complex. We predict that once the second language learner generates TENSE under AUX, he will only generate TENSE once. Thus the correct sequences of the English auxiliary system will not be acquired until the French learner reorganises the VP to include TENSE.

As will be fully discussed in the next example, we do entertain the possibility that ing may be inserted in the past participle context generating Did Mary be watching the baby?

The final source of error we would like to discuss is the misdistribution of the suffix ing and how the IL model can generate what appears to be a marked construction in the French language learner's output in TL. Consider John is being typing a letter, which appears to violate the Double ing constraint. We predict that the phrase-marker in TL will be constructed as in 6 a and the one for IL as in 6 b& c. These errors occur before the acquisition of AUX. The first be is inserted under V'. The sequence be type is inserted into the rest of the V'-V complex.

Phrase - marker 6



We argue that the errors will occur for the following reasons:

Taylor (1975) mentions in his analysis of errors that often Be is used as an all function auxiliary. We feel that the French language learner will insert the second Be under the same node as the French auxilairy être. We hypothesize that he or she will substitute the ending ing in the past participle context Emonds (1979) states that there are common syntactic and semantic properties shared by the past participles in French and English. He characterises the context of the past participle distribution as follows:

V past participle /[$_{V'}$V']

However his analysis of the English auxiliary system (1979) and (TAES 1976) shows that this context does not include Be + ing which he classifies as a construction with similar properties as the verbs of termporal aspect requiring a different PM structure. We can see that the way the verbal complex is expanded in French is not adequate to account for this marked construction. We feel that the French language learner may substitue the suffix ing in in the past participle context. The reason for this substitution is due to the creativity aspect of the IL. The learner will use IL in an attempt to create utterances in TL for the purposes of communication. Therefore we feel that one of the first attempts at reorganisation will be to try to acquire the TENSE system for the purposes of communication. In our discussion on subsystems, we gave as supporting evidence for the existence of IL Bickerton's study of creoles (1981). One of the elements which evolved in creoles was the TENSE MODAL ASPECT system (TMA), more complex than in their pidgin ancestors. We feel that although the complete mastery of the TENSE system in English requires the correct expansion of AUX and TENSE generated as part of VP, the French learner will make some attempt to generate the suffix ing. The misdribution of ing, we feel is due to the effort of the second language learner to create the progressive notion indicated by the affix. Although it is beyond the scope of this study at this time, to posit any hard and fast rule as to how cross linguistic markers express the semantic notions of TENSE and ASPECT, we feel the creative aspect of Il

will lend itself to this type of error. This still does not weaken the claim that the construction of the phrase-marker generates language learner errors. The productiveness of this suffix denoting continuity has been observed in a number of areas. French children bilingual speakers of English (6) have been observed affixing ing to a French verb such as I am bouffing now 'I am eating now.' Ing is also a productive suffix in cases of French borrowing, often in cases where an action noun is coined, and is used in a fashion not used in the donor language. For example Le dribbling 'dribble' (football term)

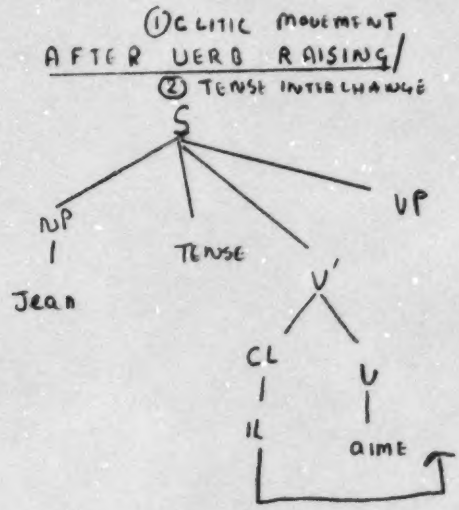
We now turn to the prediction of errors made by English language learners of French.

The first source of error appears in question inversion. This involves a clitic in the expansion of the verbal complex to ensure the correct output in TL. Consider phrase-marker 7 for the sentence Jean, aime-t-il Marie.

We predict that the Il model we are proposing will generate A Jean aimé Marie as in phrase-marker 7b & c.

Phrase-marker 7

TL A

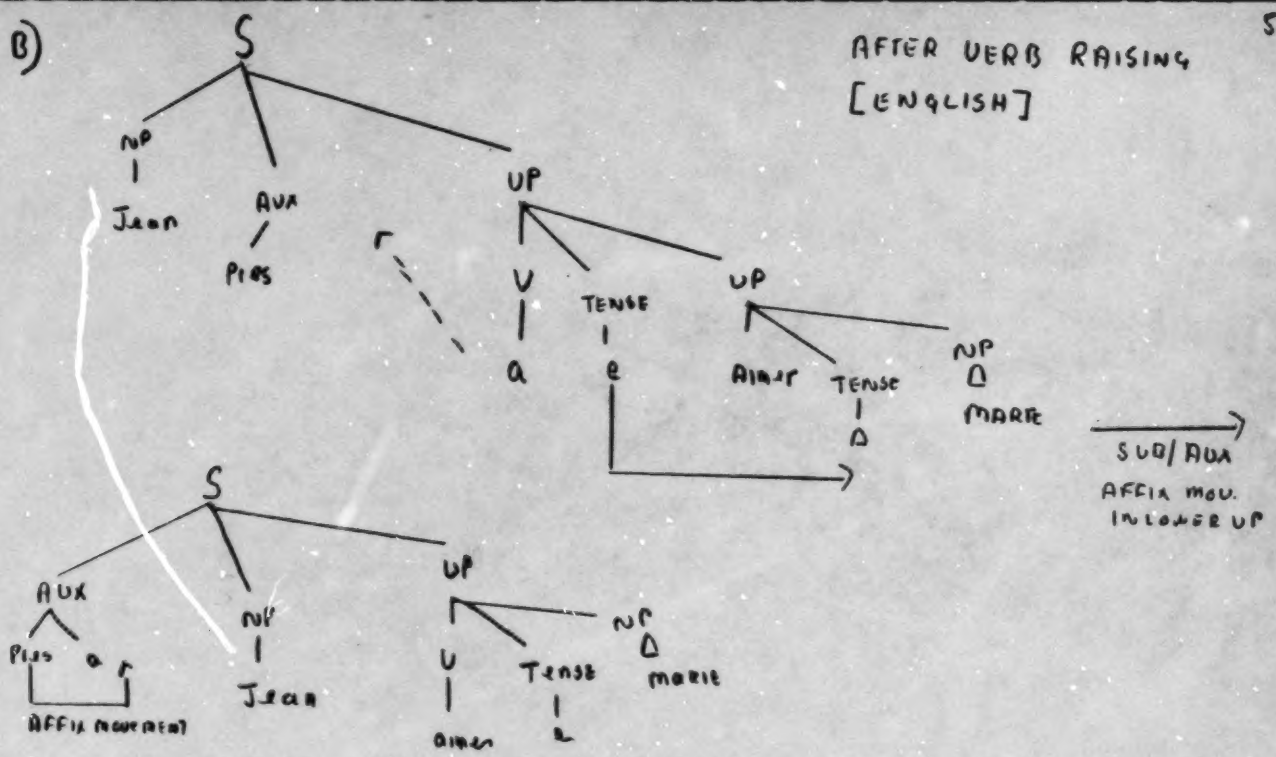


A Phonological Rule INSERTS t INBETWEEN 2 Vowels

Jean aime-t-il Marie ?

IL B)

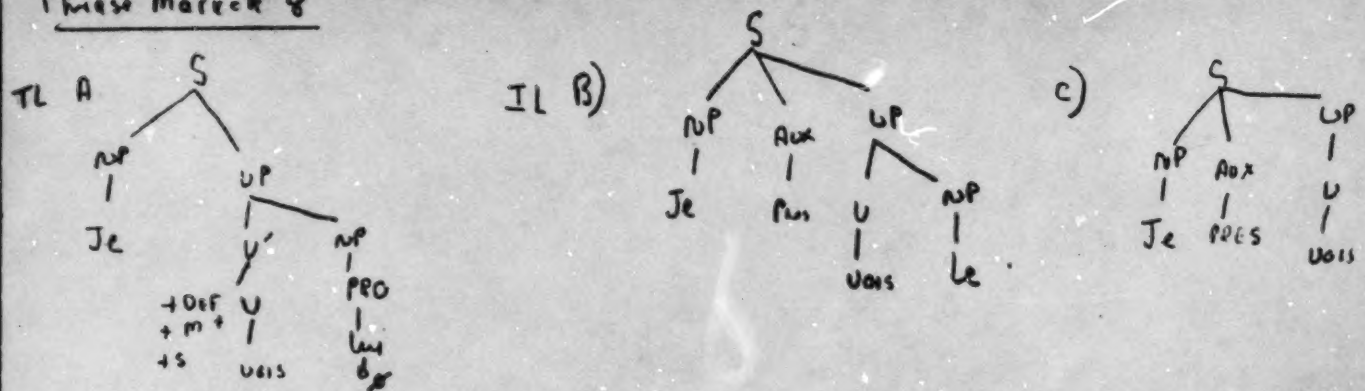
AFTER VERB RAISING
[ENGLISH]



We feel that initially the English learner of French will construct his phrase-marker generating the AUX node. Thus the phrase-marker of the IL system will contain the English rule of VERB RAISING which will raise an an auxiliary such as avoir into the AUX node. Then SUB/AUX inversion can apply to generate *A Jean aime Marie?.

In our section on markedness we described the stages of acquisition of the clitics in pre-verbal position which show a marked SOV word order as cited in Newmeyer (1983). we predict the following errors. 1) Je vois le 'I see it' Je vois Je le vois. The following three phrase-markers show how IL differs from TL according the stages cited by Newmeyer.

Phrase Marker 8

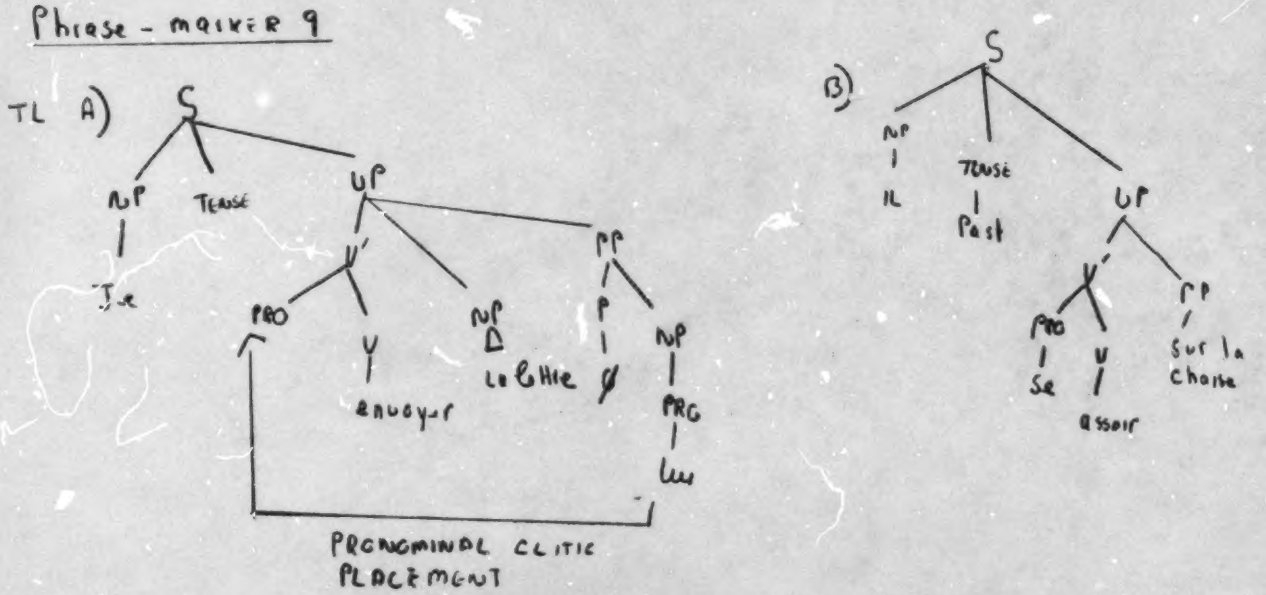


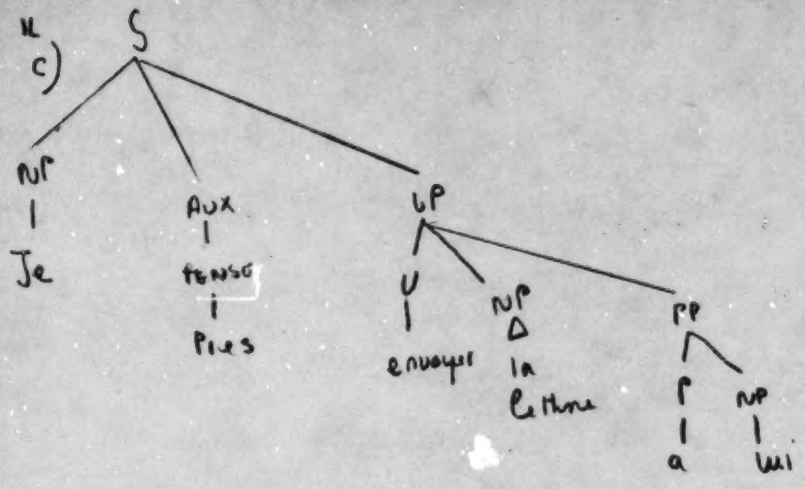
We hypothesize that for the purposes of communication, the second language learner will first generate the clitic in the postverbal position. Since the organisation of the VP does not permit the clitic forming a constituent with the verb, it will remain in the postverbal position. He or she will then omit it all together until the reorganisation of VP is complete.

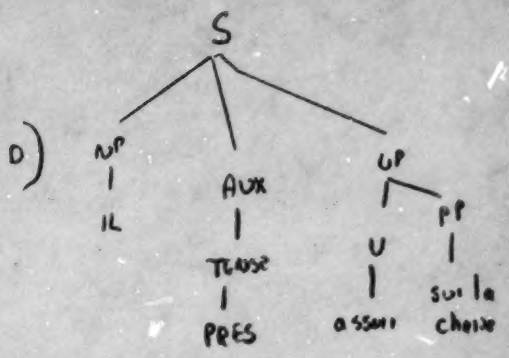
The absence of the categories which serve as the source for clitics in the grammer of the English language learners of French, will result in the inability to distinguish between various types of clitics. There is no empty PRO to serve as a source for Reflexive and non-reflexive clitics.

Thus we predict errors such as J'envoye la lettre à lui. and Il assit sur la chaise. Thus TL and Il will differ in the in the following manner:

Phrase - maiker 9







Phrase-marker 8a shows that a local rule can insert the defininte form le la or les, which occurs in preverbal position and forms a constituent with the verb, showing agreement in grammatical number and gender with the forms LUI, EUX, ELLE(S) which have been deleted. We showed how the environment for the local rule which accomplishes this had not been created. We hypothesize that once the category PRO has been acquired, the total regoranisation of the verbal complex is needed to make the distinction between the grammatical markings of Le la and les and other clitics. We claim that the English learner of French will generate all clitics in the PRO positions.

To summerize the discussion on the acquisition of clitics by English learners of French, the IL system will reflect:

1) The organisation of VP will not create the environment for the application of rules which move clitics to a position to the left of the verb. The VP is not organised so that the clitics can form a constituent with the verb.
2) The organisation of the VP does not allow the division of labor between the LE LA LES rule and the clitic placement

rule, thus the IL system will not initially distinguish the syntactic properties of certain cltics.

Based on the preceeding discussion, we would now like to posit some rules for the auxiliary systems in French and English and the rules for clitic placement in French, which we argue will be found in the Interlanguage Grammers for French learners of English and English learners of French.

We have posited three main stages for IL. However, since we are not presenting any experimental data at this time, we are just giving the broad outlines for Stage 2. We predict that these stages may vary, especially in the way the rules are assimilated.

Stage 1

We predict that the French learners of English will construct the phrase-marker according to the rules on Table 3 and 5. The English learner of French according to the rules on Table 1.

Stage 2 - French learners of English

PS RULES	TRANSFORMATIONS
A) S $\longrightarrow$ NP AUX TENSE VP	VERB TENSE interchange
AUX $\longrightarrow$ $\begin{Bmatrix} DO \\ M \end{Bmatrix}$	SUB/CL. inversion
	Past. Part. rule
VP $\longrightarrow$ V' $\left(\begin{matrix} (V') \\ (PRO)(CL) \end{matrix}\right)$ V	SUBJ/AUX inversion

b) PS RULES

		TRANSFORMATIONS
S ⟶	NP AUX VP	SUBJ/AUX inversion
AUX ⟶	(T)(M)	TENSE Rule
VP	V' { (V') / (PRO)(CL) } V	SUBJ/CL inversion
		Past. Part. rule
		DO insertion

Stage 2 - English learners' of French

A) PS RULES

		TRANSFORMATIONS
S ⟶	NP TENSE VP	TENSE rule.
VP ⟶	V TENSE	

B) PS RULES

		TRANSFORMATIONS
S ⟶	NP TENSE VP	TENSE rule
VP ⟶	V TENSE PRO	CLITIC MOVEMENT

Stage 3

By this stage the French learner's of English will have acquired the rules on Table 1 and the English learner's will have acquired the rules on table 3 and 5.

Throughout this study, we have stressed the fact that the structure of the model of an IL system must reflect what is common to languages as well as their differences. A model which can posit a unified mechanism which generates language particular differences will provide the best accounting of cross linguistic theory.

We have hypothesized that the IL model will be patterned after LAD and will be as outlined in section 1.

The abstract deep structure will be generated by a set of well formed phrase structure structure rules. The configeration of the phrase marker will determine whether certain criteria needed to create the environment of a rule have been met. One important criterion is that the shape of the phrasemarker as generated by the

base rules must be conserved, or the rules will be blocked.

Language particular differences will be generated according how the phrase-marker is shaped. This is turn is dependent on what elements have been selected from with limits of the Core Grammer.

The second language learner's progressive IL systems will assimilate certain triggers needed to create the environment of a rule This is similar to the way that children's grammers gradually contain all the elements for correct rule application.

Second language learners' errors will reflect the interim stages of the gradual acquisition of these triggers.

We feel that children and adults will both possess an Interlanguage system. However although the same predetermined structure outlined is present in both, adults as a result of the development of the nervous system will resort to higher level solving processes in their acquisition of rules.

A motivating factor for the framework of IL we have chosen, is that an accounting by the same mechanism can be given for the linear ordering of two cross linguistic constructions.

Endnotes

1. Bellugi, U. "Language Structure and Language Breakdown in American Sign Language in Psychobiology of Language ed. Michael Studdert-Kennedy. Cambridge Mass: MIT Press. 1983.

2. Remarks made in an interview which appeared in Omni in November 1983

3. Changeux, Jean Pierre, "Properties of the Neuronal Network in Language Learning-The Debate between Jean Piaget and and Noam Chomsky. ed M. Prattelini-Palmarini London: Routledge,Kegen Paul. 1980.

4. Ibid Changeux, 1980.

5. Lamendella, J General Principles of Neurofunctional Oganisation and their Manifestation in Primary and Non-primary Language Acquisition. Language Learning Vol. 27

6. Observation of bilingual English and French speaking children at the Lycee International St. Germain-en-laye, France in 1977.

References

Adjemian,C (1976) "On the Nature of Interlanguage Systems in Language Learning". Vol 26.

Akmajian, A Steele, S, Warsaw T, (1979) " The category AUX in Universal Grammer." Linguistic Inquiry Vol 10.

Angewine J.B.,jr. and Cotman Carl W.(1980) Principles of Neuroanatomy. Oxford University Press.

Bach, E.(1967) "Have and Be in English Syntax" Language 43.

Baker, C L(1979) "The Syntactic Theory and the Projection Problem" Linguistic Enguiry. Vol. 10

Baltin, M. (1978) Towards a Theory of Movement Rules. Doctoral Dissertation. MIT, Cambridge, Massachusetts.

Baltin ,M "Strict Bounding".(1981)In C.L Baker and J Macarthy eds., The Logical Problem of Language Acquisition MIT Press Cambridge, Massachusetts.

Baltin,M (1982a) "A Landing Site of Movement Rules" Linguistic Enguiry 13-1

Baltin, M (1982b) The Propert Notion of Proper Government New York University, New York.

Baltin, M. (1985) "Language Learnability, Language Variation and Some Recent Proposals in Grammatical Theory". Annuls of The New York Acadamy of Sciences

Bellugi, U. (1983) " Language Structure and Language Breakdown in American Sign Language". In Psychobiology of Language Cambridge, Mass: MIT Press.

Bever,T.G., Fodor, J.A.and Weksel, W. (1965)" On the Acquisition of Syntax". Psychological Review. Vol.76.

Bickerton,D. (1981) Roots of Language. Ann Arbor: Karoma Publishers, Inc.

Braine, M.(1963) " On the Learning of Grammatical Words". Psychological Review.Vol.4

Brown, R.(1970) Psycholinguistics. New York: The Free Press

Chomksy, C.(1981) "Stages in Language Development and Reading Exposure".In Thought & Language, Language & Reading Havard Educational Review.

Chomksy, N. (1965) Aspects of the Theory of Syntax. Cambridge, Mass:MIT Press.

Chomksy, N (1977a)" Conditions on Rules of Grammer." in N. Chomksy, Essays on Form and Interpretation. New York: Eslevier.

Chomksy, N.(1977b) "On WH Movement" in P.W. Culicover, T Wasow and A Akmajian eds., Formal Syntax. New York:Academic Press.

Chomksy, N (1982) Lectures on Government and Binding Dorderecht,Holland: Foris Publications.

Costello, John (1978) "Syntactic Change and Second Language Acquisition" Linguistics

Dingwall, W. (1974) "Neurolinguistics". Annual Review of Anthropology. Vol. 3.

Dulay,H.,and Marina K. Burt (1974) "Natural Sequences in Child Second Language Acquisition". Language Learning

Emonds,(1976) J. A Transformational Approach to English Syntax. New York:Academic Press.

Emonds, J. (1978) The Verbal Complex V-V in French Linguistic Inquiry. Vol 9.

Geschwind,N.(1983) " Biological Foundations of Language and Hemispheric Dominance". In Psychobiology of Language, ed. Michael Studdert-Kennedy. Cambridge Mass: MIT Press

Goldman, D. (1984) "The Aging Mind Proves Capable of Lifelong Growth". New York Times.

Goodwind, H. (1983) A "Neuropyschological Approach". In Psychobiology of Language. ed Michael Studdert-Kennedy. Cambridge,Mass: MIT Press.

Hakuta,K., Cancino, K (1980) "Trends in Second Language Acquisition".In Language & Thought, Language & Reading Havard Educational Review

Harris,Z. (1954) "Transfer Grammer". International Journal of American Linguistics, Vol XX

Katz,J (1964) "Mentalism in Linguistics". Language Vol 2

Kayne, R. (1975) French Syntax. Cambridge, Mass: MIT Press.

Klima, E. and Bellugi-Klima, U. (1966) " The Syntactic Regularities of Children". In Psycholinguistic Papers. ed. J Lyons and R. Wales. Edinburgh: Edinburgh Univ. Press.

Krashen, S.(1977) "The Critical Period for Language Acquisition and It's Possible Bases". The Annals of the New York Academy

of Sciences. No. 2631-287.

Lamendella, J (1977) "General Principles of Neurofunctional Organisation and their Manifestation in Primary and Non-Primary Language Acquisition " . Language Learning Vol.27

Luria, A.R.(1924) " Towards the Basic Problems of Neurolinguistics".Brain and Language Vol.1

McLaughlin,B (1982)" Second Language Acquisition" in Handbook of Applied Linguistics Erlbum

Miller, S. (1984) A Generative Model of an Interlanguage System. A paper given at the Boston University Language Development Conference. Boston Mass.

Nemser, W. (1971) "Approximative Systems of Foreign Language Learners". International Journal of Linguistics. Vol.19

Newmeyer, F.J. (1983) Grammatical Theory: It's Limits and It's Possibilities. Chicago, Illinois: Chicago Univ. Press.

Ojemann, G (1983) " Localisation of the Common Cortex for Motor Sequencing and Phoneme Identification". In Psychobiology of Language. ed. Michael Studdert-Kennedy. Cambridge, Mass: MIT Press.

Peters, S.(1972) "The Projection Problem: How a Grammer is to be selected" in The Goals of Linguistic Theory. Englewood New Jersey: Prentice Hall

Phinney,M.(1981) "Markedness and the Development of Comp". In Markedness and Learnability. Amhurst Mass: U.Mass Working Papers

Plyshyn,Z.W.(1983) " Syntax as an Autonomous Component of Language". In Psychobiology of Language, ed Michael Studdert-Kennedy. Cambridge,Mass: MIT.

Prattelini-Palmarini,M.(1980) Language and Learning: the Debate Between Jean Piaget and Noam Chomsky. London: Routledge and Kegan Paul.

Rosenbaum, P.(1981) "On The Role of Linguistics in the Teaching of English". Thought & Language, Language & Reading Havard Educational Review

Schane, S., Tranel, B., and Lane H.(1975) "The Psychological Reality of a Phoneme. Cognition Vol 3.

Selinker, L.(1972) "Interlanguage". The International Review of Linguistics. Vol. 10

Selinker, L (1975) " The Interlanguage Hypothesis Extended to

Children". Cognition Vol.3.

Shankweiler, D.,and Michael Studdert-Kennedy (1975)" A Continium of Speech Perception". Brain and Language. Vol.2

Stowell, T. (1981) On the Origins of Phrase Structure.
PHD Dissertation MIT Cambridge Mass.
Solan, L(1981) "Fixing Paremeters: Language Acquisition and Language Variation". In Markedness and Learnability. Amhurst Mass:U. Mass. Working Papers.

Taylor, B.(1975) " The Use of Overgeneralisation and Transfer Learning Strategies by Elementary and Intermediate Students of ESL". Language Learning. Vol.15.

White,L.(1980) Grammatical Theory and Language Acquisition.
Bloomington: Indiana Linguistics Club.

Zurif, E.R. (1983) "Aspects of Sentence Processing in Asphasia" In Psychobiology of Language. Cambridge Mass: MIT Press.